

Application No. 09/981,207  
Response to Office Action

Customer No. 01933

Listing of Claims:

Claims 1 - 10 (Canceled).

11. (New) A printing apparatus for printing an image using a consumable detachably attached to the printing apparatus, wherein the consumable is adapted to output a response code obtained by encoding an identification code with a set logic and 5 wherein a first logic is set in the consumable as the set logic when the consumable is unused, said printing apparatus comprising:

a generating section which generates the identification code;

10 an output port which outputs the identification code to the consumable;

an input port through which the response code from the consumable is input;

15 an encoding section which encodes the identification code with the first logic to output a first normal code;

a collating section which collates the first normal code with the response code input through the input port;

a change section which changes the set logic in the consumable to a second logic determined in accordance with a

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20 predetermined rule, when the response code coincides with the first normal code;

a storage section which stores the second logic and an initial value as a count value corresponding to the second logic, said storage section being adapted to store a plurality of said 25 second logics in respective correspondence with respective count values;

wherein if the response code does not coincide with the first normal code, the encoding section encodes the identification code with one said second logic stored in the 30 storage section, if at least one said second logic is stored in the storage section, to output a second normal code, and the collating section collates the second normal code with the response code;

wherein if the second normal code coincides with the response code, an updating section of the printing apparatus 35 updates the count value stored in the storage section in correspondence with the second logic used to obtain the second normal code in accordance with usage of the consumable;

wherein if the response code does not coincide with the second normal code, the encoding section and the collating section repeat the encoding and the collating for each said 40 second logic stored in the storage section, until one of:  
(i) each said second logic has been subjected to encoding and

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collating, and (ii) one said second normal code coincides with  
45 the response code; and

wherein if the response code does not coincide with the  
first normal code and does not coincide with any said second  
normal code, an identifying section of the printing apparatus  
identifies the consumable as unusable.

12. (New) A printing apparatus for printing an image using  
a consumable detachably attached to the printing apparatus,  
wherein the consumable is adapted to output a response code  
obtained by encoding an identification code with a set logic and  
5 wherein a first logic is set in the consumable as the set logic  
when the consumable is unused, said printing apparatus  
comprising:

generating the identification code;  
outputting the identification code to the consumable;  
10 receiving the response code from the consumable;  
encoding the identification code with the first logic and  
outputting a first normal code;  
collating the first normal code with the received response  
code;  
15 changing the set logic in the consumable to a second logic  
determined in accordance with a predetermined rule, when the  
response code coincides with the first normal code;

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storing, in a storage section of the printing apparatus, the second logic and an initial value as a count value corresponding to the second logic, said storage section being adapted to store a plurality of said second logics in correspondence with respective count values;

encoding, if the response code does not coincide with the first normal code, the identification code with one said stored second logic, if at least one said second logic is stored in the storage section, to output a second normal code, and collating the second normal code with the response code;

30 updating, if the second normal code coincides with the response code, the count value stored in the storage section in correspondence with the second logic used to obtain the second normal code in accordance with usage of the consumable;

repeating, if the response code does not coincide with the second normal code, the encoding and the collating for each said second logic stored in the storage section, until one of:  
35 (i) each said second logic has been subjected to encoding and collating, and (ii) one said second normal code coincides with the response code; and

40 identifying the consumable as unusable, if the response code does not coincide with the first normal code and does not coincide with any said second normal code.